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IS 4553 (1983): Leather for cricket ball [CHD 17: Leather, Tanning Materials and Allied Products]



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Bhartrhari—Nitiśatakam

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SPECIFICATION FOR
LEATHER FOR CRICKET BALL
(*First Revision*)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Group 2

Indian Standard

SPECIFICATION FOR LEATHER FOR CRICKET BALL

(*First Revision*)

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Indian Standard

SPECIFICATION FOR LEATHER FOR CRICKET BALL

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 March 1983, after the draft finalized by the Leather Sectional Committee had been approved by the Chemical Division Council.

0.2 This standard was adopted in 1967 at the instance of Sports Goods Sectional Committee with the object to assist the tanners, Sports Goods Export Promotion Council and various quality markings schemes of State Governments in selecting the suitable leather.

0.3 In the light of experience gained during these years and in view of the technological developments, it became imperative to revise this standard. In addition to the existing vegetable tanned leather, three more types, namely, zirconium and zirconium-chromium combination tanned and aluminium tanned leathers have been included based on the test results of samples collected and tested at CLRI. IS : 5868-1969* and IS : 6191-1971† have been referred suitably and consequential changes have been carried out in this standard.

0.4 This edition 2.1 incorporates Amendment No. 1 (May 1998). Side bar indicates modification of the text as the result of incorporation of the amendment.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960‡. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes requirements and methods of sampling and test for cricket ball leather.

*Methods of sampling for leather.

†Methods of micro-biological colour fastness and microscopical tests for leather.

‡Rules for rounding off numerical values (*revised*).

IS : 4553 - 1983

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 1640-1960* shall apply.

3. TYPES

3.1 This standard prescribes four types of leather for cricket ball as follows :

Type 1 — Vegetable tanned,

Type 2 — Zirconium tanned,

Type 3 — Zirconium-chrome combination tanned, and

Type 4 — Alum tanned.

4. REQUIREMENTS

4.1 Raw Material — The material shall be heavy cow hides. Only the butt portion shall be used for making cricket ball.

4.2 Tanning

4.2.1 Type 1 — The material shall be in the form of butts tanned through the entire thickness by vegetable tanning materials with or without the use of syntans.

4.2.2 Type 2 — The material shall be in the form of butts tanned fully by mineral tannage using zirconium salt.

4.2.3 Type 3 — The material shall be in the form of butts tanned fully by employing zirconium-chrome combination method of tanning.

4.2.4 Type 4 — The material shall be in the form of butts fully tanned with aluminium salts.

4.3 Finishing — Suitable fungicide treatment shall be given. Fungicides used to promote mildew resistance in the leather should be effective and non-toxic, and their optimum dosage predetermined (*see* LB : 3 of IS : 6191-1971†).

4.4 Physical Requirements — The material shall comply with the physical requirements prescribed for the respective type in Table 1.

*Glossary of terms relating to hides, skins and leather.

†Methods of micro-biological, colour fastness and microscopical tests for leather.

TABLE 1 PHYSICAL REQUIREMENTS FOR LEATHER FOR CRICKET BALL
(Clause 4.4)

SL. NO.	CHARACTERISTIC	REQUIREMENT				METHOD OF TEST, REF TO	
		Type 1	Type 2	Type 3	Type 4	CI No. in IS : 5914-1970*	CI No. in IS : 6191-1971†
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Thickness, mm, <i>Min</i>	2.3	2.3	2.3	2.3	LP : 2	—
ii)	Water absorption, per- cent by mass, <i>Max</i> :						
	a) in 30 minutes	40	40	40	40	LP : 12	—
	b) in 2 hours	45	45	45	45		
	c) in 24 hours	45	45	45	45		
iii)	Cracking strength of the grain	Grains shall not crack on mandrel No. 8				LP : 13	—
iv)	Tensile strength, MPa, <i>Min</i>	25.0 (250.0)	25.0 (250.0)	25.0 (250.0)	20.0 (200.0)	LP : 6	—
v)	Elongation at break, percent, <i>Max</i>	35.0	35.0	35.0	50.0	LP : 6	—
vi)	Colour fastness :						
	a) Contrast grading after 1 024 revolution (dry)	4	4	4	4	—	LF : 9
	b) Contrast grading after 1 024 revolution (wet)	4	4	4	4		
vii)	Stitch tear strength (double hole), kg/cm thickness, <i>Min</i>	70.0	190.0	190.0	80.0	LP : 8	—

1 kgf /cm² = 98 066.5 N/m²; 1 MPa = 10⁶ N/m².

*Methods of physical testing of leather.

†Methods of micro-biological, colour fastness and microscopical tests for leather.

4.5 Chemical Requirements — The material shall also comply with the chemical requirements prescribed for the respective type in Table 2.

4.6 Resistance to Mould-Growth — The material shall show no growth of mildew when visually tested in accordance with LB : 2 of IS : 6191-1971*.

*Methods of micro-biological, colour fastness and microscopical tests for leather.

TABLE 2 CHEMICAL REQUIREMENTS FOR LEATHER FOR CRICKET BALL

(Clause 4.5)

SL No.	CHARACTERISTIC	REQUIREMENT				METHOD OF TEST, REF TO CL NO. IN IS : 582-1970*
		Type 1	Type 2	Type 3	Type 4	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	Total ash, percent by mass, <i>Max</i>	1.5	2.5	5.0	5.0	LC : 3
ii)	Solvent extractable substance, percent by mass	2.0 to 4.0	2.5 to 5.0	2.5 to 5.0	2.5 to 5.0	LC : 4
iii)	Water solubles, percent by mass, <i>Max</i>	15.0	2.0	2.0	6.0	LC : 6
iv)	pH of water soluble, <i>Min</i>	3.5	3.5	3.5	3.5	LC : 18
v)	Insoluble ash, percent by mass, <i>Max</i>	0.5	2.0	3.0	3.0	LC : 8
vi)	Degree of tannage, <i>Min</i>	55	—	—	—	LC : 2
vii)	Chrome content (Cr_2O_3), percent by mass, <i>Min</i>	—	—	3.0	—	LC : 10
viii)	Zirconium content (ZrO_2), percent by mass, <i>Min</i>	—	2.5	0.5	—	LC : 12
ix)	Aluminium content (Al_2O_3), percent by mass, <i>Min</i>	—	—	—	3.0	LC : 11

NOTE — All requirements are to be calculated on zero percent volatile matter basis except Sl No. (iv). Volatile matter shall be determined as prescribed in LC : 1 of IS : 582-1970*

*Methods of chemical testing of leather (*first revision*).

4.7 Water Proofing Treatment — If required by the purchaser, the leather shall be made water-resistant as specified.

5. MARKING AND PACKING

5.1 Marking — The leather pieces or packages or both shall be marked with the area in square decimetres and mass in kilograms, name of the manufacturer, recognized trade-mark, if any and month and year of manufacture.

5.2 Packing — The leather pieces shall be packed as agreed to between the purchaser and the supplier.

5.3 The leather pieces or packages or both may also be marked with the ISI Certification mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

6. SAMPLING AND CRITERIA FOR CONFORMITY

6.1 The scale of sampling and criteria for conformity shall conform to IS : 5868-1969*.

*Method of sampling for leather.

INDIAN STANDARDS ON LEATHER FOR SPORTS GOODS

IS:

- 3946-1966 Leather for leg guard
- 3985-1983 Leather for rugby ball
- 4102-1983 Leather for shuttlecock caps
- 4191-1967 Leather for volleyball
- 4207-1967 Leather for football
- 4553-1983 Leather for cricket ball
- 5609-1983 Leather for hockey ball
- 5597-1970 Leather for boxing gloves

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